

BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2009-473-WS

IN RE:)
)
Application of Tega Cay Water)
Service, Inc. for adjustment of)
rates and charges and modifications to)
certain terms and conditions for the)
provision of water and sewer service.)
_____)

REBUTTAL TESTIMONY
OF
BRUCE T. HAAS

1 **Q. ARE YOU THE SAME BRUCE T. HAAS THAT HAS PREFILED DIRECT**
2 **TESTIMONY IN THIS CASE?**

3 **A.** Yes, I am.
4

5 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY IN THIS**
6 **PROCEEDING, MR. HAAS?**

7 **A.** The purpose of my rebuttal testimony is to respond on behalf of Tega Cay Water
8 Service, Inc., or "TCWS", to the testimony of ORS Witness Willie Morgan, and the City
9 of Tega Cay Witness Gerald Hartman. In addition, I will address some of the specific
10 and general comments our customers made during the night hearing in this matter.
11

12 **Q. DO YOU HAVE ANY RESPONSE TO MR. MORGAN'S TESTIMONY THAT**
13 **THE COMPANY DID NOT PROVIDE INFORMATION TO ORS REGARDING**
14 **WATER SERVICE INTERRUPTIONS ON ITS SYSTEM?**

1 **A.** Yes. I understand Mr. Morgan to state that TCWS did not supply ORS with
2 information as to the time and duration of interruptions on TCWS's system. I would first
3 note that ORS is included on all Voice Reach notifications sent out to the customers
4 involving any potential system interruptions, including situations of any planned work or
5 activities, such as routine flushing. In most cases, it should be noted that information
6 provided to ORS regarding the Voice Reach notifications involved the number of
7 customers on the Voice Reach list. However, in almost all cases, a Voice Reach
8 notification may have been issued out of an abundance of caution even though the
9 customers included on these notifications may not have been affected at all. In addition,
10 the regulations indicate that records be maintained involving interruptions which affect
11 its entire system or major division. This situation rarely occurred, although our VR
12 notifications to our customers, ORS and DHEC alike, were done in each instance and in
13 excess of the requirements. As well, TCWS provided ORS with records which reflected
14 the date and the number of customers that were potentially affected by each interruption.

15
16 **Q. DID THE COMPANY ENTER INTO A CONSENT ORDER WITH DHEC IN**
17 **OCTOBER 1, 2009?**

18 **A.** Yes it did.

19 **Q. COULD YOU EXPLAIN THE CIRCUMSTANCES SURROUNDING THAT**
20 **CONSENT ORDER?**

21 **A.** Certainly. As the Commission is aware from my direct testimony in this matter,
22 the Clean Water Act, or CWA, and increasingly stringent state and federal statutes and

1 regulations have changed the way in which sewer utilities conduct their business. In
2 particular, TCWS has been under increasingly stringent standards with respect to the
3 phosphorous limits for the discharge from its plants. The Company responded by
4 submitting various proposals and engineering plans to address the issue. TCWS was
5 unable to install the additional facilities to resolve the phosphorous limits by the
6 deadlines set forth in the Schedule due to a necessary engineering redesign of the plant,
7 and upon DHEC's insistence, that the concurrent UV disinfection engineering plans be
8 combined together in one project for each facility. I would note that this engineering
9 redesign reduced the overall cost of the project which, in turn, saved the customers
10 significant additional capital costs which are now being sought to be recovered in this
11 proceeding. The Company subsequently entered into a Schedule of Compliance with
12 DHEC to complete these upgrades and as Mr. Morgan states in his direct testimony, the
13 Company has constructed the new phosphorous treatment units and UV disinfection
14 equipment for its wastewater treatment plants in accordance with the Consent Order.
15 Both of these units are now in operation and should allow the plant to operate within the
16 acceptable limits.

17
18 **Q. DID THE CONSENT ORDER ALSO ADDRESS SANITARY SEWER**
19 **OVERFLOWS ON THE WASTEWATER COLLECTION SYSTEM?**

20 **A.** Yes, it did. These instances of sanitary sewer overflows, or SSOs, on the TCWS
21 system were also addressed by Mr. Morgan as well as certain of our customers at the
22 night hearing in this matter. One customer also suggested that the SSOs were

1 endangering the health of residents. I would like to address these issues by explaining to
2 the Commission what constitutes an SSO and how DHEC regulates them. An SSO
3 occurs whenever there is an unauthorized discharge of wastewater. These can occur from
4 lift stations, manholes or mains. However, an SSO is only required to be reported to
5 DHEC when the discharge exceeds five hundred gallons, if the discharge reaches surface
6 waters of the State, or if it poses a threat to human health or the environment. As the
7 Commission may have noticed when it visited Tega Cay for the night hearing, the
8 topography is very hilly and the property is situated on the shores of Lake Wylie. The
9 majority of the Company's main sewer lines and lift stations are located between the
10 residences and the shore lines. Accordingly, whenever an overflow occurs, there is a
11 good chance that the wastewater will reach surface waters, resulting in a reportable
12 discharge.

13 Additionally, with respect to the overflows at issue in the Consent Order, most of
14 them were caused by a combination of roots or grease in the collection system. Grease
15 collection and root intrusion into lines are usually not discovered until an SSO occurs
16 unless it is revealed in the course of television inspection of our lines. However, the
17 Company does try to take proactive steps to avoid these issues by performing
18 maintenance on the collection lines. In fact, since 2005, the Company has cleaned over
19 14 miles of sewer mains through its maintenance program. Regarding our alarm systems
20 for overflows, we have installed telemetry devices at our lift stations to supplement the
21 audible and visual alarms. And, as one of the customers noted, we responded to the
22 overflow immediately to address the problem.

1 The Company did experience a few overflows that were attributable to work
2 being performed on Wastewater Treatment Plant #3 due to a failure in the internal
3 structure wall. As mentioned by a customer at the night hearing held in this matter, this
4 issue necessitated the entire pumping down of the facility and continued pumping to
5 maintain flows at the plant while repairs were underway. Due to the number of vacuum
6 trucks involved and the wintery-mix conditions that occurred during the emergency
7 repairs, wastewater unfortunately backed up into the collection system and caused
8 overflows until we were able to pump the system down soon thereafter. I would also
9 note that the Company notified ORS and DHEC of these issues.

10
11 **Q. DID DHEC IMPOSE A FINE AS A RESULT OF THESE VIOLATIONS?**

12 **A.** Yes, the Company agreed to pay a \$22,000 fine in association with the consent
13 order. I would note, however, that the Company is not seeking to pass this fine through
14 to rate payers by recovering it in the rates proposed in this proceeding. I would further
15 note that Mr. Morgan testified that there were no problems on the Company's system at
16 the time of his site visit relative to this matter. I believe that the Company has taken and
17 is taking appropriate steps to address the issues raised in the Consent Order and that the
18 Company is operating in compliance with DHEC regulations.

19
20 **Q. MR. HARTMAN STATES THAT THE COMPANY'S REVENUE**
21 **REQUIREMENT SHOULD BE REDUCED DUE TO A HIGH AMOUNT OF**
22 **UNACCOUNTED FOR WATER. DO YOU AGREE?**

1 **A.** No, I do not. Mr. Hartman references ORS Witness Morgan's direct testimony
2 which was filed in the Company's last rate case in Docket No. 2006-97-W/S. There, Mr.
3 Morgan asserted that TCWS experienced an unaccounted for water amount of over 12%.
4 As also acknowledged by Mr. Morgan in that proceeding, TCWS informed ORS that
5 there was an overflow issue with York County's supply of potable water to our elevated
6 storage tank and was not the result of an issue on TCWS's system.

7
8 **Q. WOULD YOU PLEASE DESCRIBE WHY OVERFLOW WAS AN ISSUE AT**
9 **THE COMPANY'S ELEVATED WATER STORAGE FACILITY?**

10 **A.** Yes. This overflow situation was caused by the configuration and operation of
11 York County's booster pumps, which frequently put to TCWS more water than could be
12 consumed by customers and stored by the Company in our existing elevated storage
13 facility. At the time of the Company's 2006 rate case proceeding, York County had not
14 taken any additional steps to correct the problem and, had the overflow not been allowed
15 to occur, York County's booster pumps could have been damaged, or static pressure
16 could have built up in TCWS's lines resulting in increased risks of line breakages.
17 Therefore, the overflow was simply a means of accommodating York County's operation
18 of its bulk water booster pumps without doing damage to the County's system, TCWS's
19 system, or customer premises. York County has since completed the installation of
20 additional water storage tank located near the intersection of Gold Hill Rd. and Hwy. 160
21 which now alleviates most of these types of surges. As a result, the "unaccounted for

1 water loss” suggested by the City no longer occurs and I would note that Mr. Morgan has
2 not addressed that issue again in this proceeding.

3
4 **Q. HOW DID THIS ISSUE WITH YORK COUNTY’S SYSTEM AFFECT THE**
5 **UNACCOUNTED FOR WATER ON TCWS’S SYSTEM IN 2005?**

6 A. First, I would like to clarify that the use of the term “unaccounted for water” has
7 been discontinued by the Commission with respect to TCWS. In its Order Number 91-
8 1090 in Docket Number 90-287-W/S, a copy of which I attach as BTH Rebuttal Exhibit
9 No. 1, the Commission defined and adopted the terms “account water”, “non account
10 water”, “authorized water uses”, “utility water use” and “system leakage”, because they
11 “more accurately describe the potential uses of water produced or purchased by a water
12 utility than does the term ‘unaccounted for water.’”

13 Second, Mr. Morgan’s analysis as presented in Docket No. 2006-97-W/S could be
14 read to assume that the entire amount of water put to TCWS by York County is water that
15 is purchased by TCWS and therefore would be relevant to the analysis. This assumption
16 would not be correct. Although Section 3 of the Company’s contract with York County
17 attached to Mr. Morgan’s testimony in that proceeding does contemplate that the bulk
18 charge to TCWS will be based upon water passing through the County’s master meter,
19 that same section of the contract also provides that TCWS’s payments to the County will
20 be “based on the water usage registered on all Utility customer’s meters within the Water
21 Service Area.” York County has always recognized that the contract requires TCWS to
22 pay only for water provided that is actually sold by the Company to customers unless the

1 amount of non account water reaches the total which is derived by multiplying the water
2 usage registered at customer meters by 115%. Since TCWS began receiving bulk service
3 over 15-years ago, no additional charges from York County have ever been imposed for
4 exceeding this provision. Thus, in the test year at issue in this proceeding, as well as in
5 2005, the Company was charged by York County only for water based upon the amount
6 metered at customer premises. Since “non account water”, as defined by the Commission
7 in Order Number 91-1090 only includes the water that is purchased by TCWS and not
8 billed to a customer account, there was no non account water in the test year.

9 Third, Mr. Morgan’s analysis in the 2006 rate case proceeding assumed that the
10 total amount of water that is put to TCWS by York County was properly attributable as
11 “water supplied” to TCWS. I would have to take issue with that previous assumption
12 since, because of the issues with York County’s system I discussed above, a substantial
13 amount of the water that was pumped to the Company by York County would have never
14 entered our service lines. Furthermore, by virtue of its agreement with the Company,
15 York County has already determined that non account water at the TCWS system will
16 only become an issue for the County when the amount of bulk water metered exceeds
17 115% of the amount of water we sell to customers. To date, that has never occurred.
18 And in the event that it did, York County would be able to simply increase its charge to
19 TCWS and there would be no need for an increase in the County’s wholesale rate.
20 Finally, and as is recognized in Commission Order Number 93-1121 in Docket Number
21 93-560-W, the Company’s agreement with York County specifically entitles the
22 Company to a wholesale rate that is no greater than that charged by York County for any

1 of its other wholesale customers. Given these facts, I cannot agree that “the cost of any
2 water loss on the system is borne by the customers through higher wholesale rates” as
3 asserted by Mr. Morgan in Docket No. 2006-97-W/S and adopted by Mr. Hartman in this
4 proceeding.

5
6 **Q. DO YOU AGREE WITH MR. HARTMAN’S CONTENTION THAT THE**
7 **COMPANY HAD A WATER LOSS OF OVER 12% IN THE TEST YEAR IN THE**
8 **2006 RATE CASE PROCEEDING?**

9 **A.** No, I do not. In light of the definitions adopted in Commission Order Number
10 91-1090, there was no non account water in the test year since York County did not
11 charge TCWS for any amount of water in excess of that metered at customer premises.

12 Moreover, it is not reasonable to attribute to TCWS water that was never
13 introduced into the Company’s system for delivery to customers as that water could not
14 have constituted “system leakage” as defined by the Commission. Because Mr.
15 Morgan’s analysis considered “water loss” in view of the amount of water passing
16 through York County’s master meter, the starting point for a determination of exactly
17 how much water the Company loses due to system leakage was inflated.

18 Furthermore, given that York County did not impose a charge for bulk water in
19 the test year in excess of the amount metered at customer premises, it must be assumed
20 that the amount of overflow was not less than 12,927,162 gallons. This is so because
21 115% of the 111,537,250 gallons billed to our customers is 128,267,838 gallons. As Mr.
22 Morgan acknowledged in 2006, TCWS was able to then account for 111,537,250 gallons

1 of the water which passed through the York County master meter as being metered and
2 used at customer premises and for another 10,746,013 gallons of the water which passed
3 through the York County master meter as being metered and used at the Company's three
4 wastewater treatment facilities. This totals 122,283,263 gallons. If no more than
5 128,267,838 gallons of the water passing through the York County master meter entered
6 the Company's system, this means that approximately 5,984,575 gallons were not able to
7 be accounted for as account water, authorized water uses, or utility water uses as defined
8 in Order Number 91-1090. That works out to be about 4.6% in "system leakage", which
9 is acceptable under the standard adopted by Mr. Morgan and Mr. Hartman for "water
10 loss."

11
12 **Q. WHAT WAS THE RESOLUTION OF THE ISSUE IN THE COMPANY'S 2006**
13 **RATE CASE PROCEEDING?**

14 **A.** ORS entered into a settlement agreement with TCWS in that proceeding which
15 did not make any requirements of the Company regarding "unaccounted for water".
16 However, since that time, the Company has installed a meter pit and meter to evaluate
17 and control and prevent the overflow situations at the elevated storage tank.
18 Furthermore, the Company has recorded and documented the gallonage of overflows on
19 the York County system to better account for water loss due to the booster pumps. As a
20 result, the overflow issues caused by York County have largely been addressed. I would
21 further note that, as shown in Mr. Hartman's Exhibit GCH-4, during the test year in this
22 proceeding, the Company experienced water loss in the amount of 3.95% which is well

1 within the AWWA standard proposed by Mr. Hartman. Therefore the amount of “water
2 loss” on TCWS’s system has been significantly reduced.

3
4 **Q. DO YOU HAVE ANY RESPONSE TO MR. HARTMAN’S TESTIMONY THAT**
5 **IN 1999, THE COMPANY EXPERIENCED A HIGH LEVEL OF INFLOW AND**
6 **INFILTRATION (“I/I”)?**

7 **A.** Yes. The study Mr. Hartman references in his testimony was conducted over ten
8 years ago at a time when the City of Tega Cay was interested in purchasing its system. It
9 is my understanding that the City hired Mr. Hartman to evaluate the wastewater
10 collection system to ascertain its value and whether or not it would be interested in
11 purchasing the system. I would first point out that because the City was looking to
12 purchase the system, it was incented to value the system as low as possible and to,
13 therefore, emphasize potential issues with the facilities. However, the Company has
14 several maintenance and repair programs in place to identify instances of I/I and to
15 reduce the amount of I/I to a reasonable level. For instance, TCWS has performed smoke
16 testing of its collection lines to ascertain the presence and location of line breaks where
17 I/I might occur. Additionally, the Company has made numerous point repairs to the
18 collection lines and lift station facilities to address root intrusions on the system which
19 can again allow ground water to enter the wastewater system. TCWS has also modified
20 several manholes in order to raise them to grade. This helps prevent stormwater run-off
21 from streets or from low-lying areas from entering the system. In addition to these
22 specific steps, the Company also conducts manhole inspections in an effort to find new

1 areas where the landscape may have been altered in such a way that creates a new inflow
2 or infiltration issue. Also, our operators perform visual inspections during rain events to
3 try and ascertain areas in which infiltration may be a problem and where additional
4 efforts may need to be made. Based on these efforts, I/I is being addressed on a continual
5 basis through maintenance and routine inspections.

6
7 **Q. WHAT CUSTOMER CONCERNS EXPRESSED AT THE NIGHT HEARING DO**
8 **YOU WISH TO RESPOND TO, MR. HAAS?**

9 **A.** Two of our customers complained about faulty meter readings and inconsistent
10 billing dates. With respect to Ms. Roberta Whitaker who testified at the TCWS night
11 hearing that her meter has been misread on several occasions, I would respond that her
12 water meter is located very near the water meter for the adjacent property. The meter
13 reader in that location did have occasional difficulty distinguishing the meter for the
14 appropriate property. However, as Ms. Whitaker stated, the Company painted the meter
15 box to indicate the correct meter, credited Ms. Whitaker's account appropriately, and I
16 am not aware of any further problems in this regard since.

17 Certain of our customers complained about water clarity or particles. As the
18 Commission is aware, the Company purchases bulk water from York County.
19 Occasionally, line flushing can introduce particles which create an unpleasant appearance
20 that cannot be avoided. Our water meets all DHEC and EPA standards for consumption.
21 Whenever a customer complains about the appearance of the water and we have not been
22 flushing lines, we do investigate. I would note that the original water source for both the

1 Company and the City is surface treated water from Lake Wylie that is treated by the City
2 of Rock Hill.

3
4 **Q. DO YOU BELIEVE THAT MR. MORGAN’S RECOMMENDATION THAT THE**
5 **COMPANY SHOULD INCREASE ITS FLUSHING TO A MONTHLY BASIS IS,**
6 **THEREFORE, NECESSARY?**

7 **A.** No, I do not. As I mentioned earlier, TCWS purchases bulk water from York
8 County and, as Mr. Morgan acknowledges, TCWS meets all of the DHEC standards for
9 water quality. The issues raised by certain customers at the night hearing regarding
10 “black rings” around toilet bowls are not caused by poor water quality. Rather, these
11 issues are related to naturally occurring bacteria and can be easily controlled through
12 routine cleaning and sanitization of the plumbing fixtures. Increased flushing on the
13 system would not alleviate these problems and would only serve to increase the amount
14 of non-account water and, consequently, increase the ultimate cost to the customer. In
15 addition, during periods of drought, this excessive use of water which would not benefit
16 customers or improve their water quality, would put additional unneeded strains on the
17 water supply. I therefore do not agree with Mr. Morgan that additional flushing is needed
18 on the TCWS system. Rather, I believe that the Company’s current maintenance program
19 which provides for flushing on an annual basis and in the event of main breaks and other
20 similar events is reasonable and appropriate for this system.

1 **Q. DO YOU AGREE WITH MR. MORGAN’S SUGGESTION THAT TCWS**
2 **SHOULD INSTALL METERS ON ALL RELEASE POINTS ON THE WATER**
3 **SYSTEM?**

4 **A.** No. ORS suggests that the Company meter individual blow-off valves and other
5 flushing locations, such as hydrants, on its water system. TCWS is of the view that this is
6 not necessary and would be unduly expensive. Currently, the number of gallons used in
7 system flushing is calculated based upon estimated flows from either hydrants, “blow-
8 offs” or other release points. Because of the Company’s operators experience in the field
9 performing what is a necessary and routine maintenance task, we believe these estimates
10 are reasonable in calculating the amount of water consumed during flushing. In addition
11 to the reliability of the estimates made by our operators based on their experience in the
12 field which makes such an effort unnecessary, the cost to do this would be significant.
13 First, each of the Company’s 110+ blow-off or release points in the Tega Cay system
14 would have to be modified to accept a flushing meter such as that proposed by Mr.
15 Morgan. Each of these points varies with respect to the size of the discharge point and do
16 not currently have installed fittings which would permit a meter to be connected. Because
17 each blow-off point is located in different areas and access and installation may be more
18 difficult in some circumstances, it would be difficult to generalize a cost for such a
19 project. However, I would estimate that each modification would cost at least \$200 and
20 may well exceed \$1000 per modification depending upon the location, landscaping
21 restoration that may be required and overall piping modifications that may be necessary.

1 Therefore, the total cost to install the meters recommended by Mr. Morgan could well
2 exceed tens of thousands of dollars if this is required.
3

4 **Q. DO YOU HAVE ANY COMMENTS ON CUSTOMER TESTIMONY THAT**
5 **TCWS SHOULD PURCHASE ADDITIONAL SOFTWARE TO OPTIMIZE ITS**
6 **SYSTEM?**

7 **A.** My only comment would be to state that such software is very expensive to
8 purchase and operate and would not be beneficial to the Company or its customers. I
9 would also note that the customer who testified regarding this software indicated that he
10 primarily worked with larger municipal water and wastewater systems and that he had
11 not contacted TCWS in this regard. Because he is a customer of the Company, I can only
12 surmise that he has not discussed his product with the Company due to its inapplicability
13 to our system or because of its excessive cost.

14 **Q. DO YOU HAVE ANY COMMENT ON CUSTOMER TESTIMONY THAT**
15 **“RADIO READ” METERS ARE AVAILABLE TO WATER COMPANY’S FREE**
16 **OF CHARGE?**

17 **A.** It is my understanding that such meters are available in the market place at an
18 average cost of approximately \$125-\$150 each with an estimated average cost of an
19 additional \$50-\$75 to install. The cost to install such meters on the entire TCWS system
20 would therefore cost approximately \$300,000 to \$400,000. While I understood the
21 customer to state that certain companies offer free radio meters, in my 31 years in the

1 water and sewer industry, I have never been offered equipment such as that free of charge
2 or without some form of monetary commitment on the part of the Company.

3
4 **Q. IF THE COMPANY WERE PRESENTED WITH SUCH AN OPPORTUNITY,**
5 **WOULD IT BE WILLING TO CONSIDER THAT OPTION?**

6 **A.** Certainly. However, I would note that since the night hearing in this matter over
7 one month ago, I have not received any information from that customer or otherwise
8 which would suggest such a program is available.

9
10 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

11 **A.** Yes, it does.

BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 90-287-W/S - ORDER NO. 91-1090✓
DECEMBER 10, 1991

IN RE: Application of TCU, Inc. for Approval)
 of a New Schedule of Rates and Charges) ORDER ON
 for Water and Sewer Service Provided) REHEARING
 to Tega Cay, South Carolina.)

This matter is before the Public Service Commission of South Carolina (the Commission) upon the rehearing ordered by the Commission pursuant to Order No. 91-535 (July 3, 1991). As specified by Order No. 91-535, TCU, Inc's (the Company's or TCU's)¹ claim that its 14.1% unaccounted for water rate during the test year was reasonable was not supported by the evidence of record from the original hearing.² Accordingly, the Commission granted the Intervenor Consumer Advocate for the State of South Carolina's (the Consumer Advocate's) Petition for Reconsideration on the issue of TCU's unaccounted for water.

A rehearing for the purpose of presenting evidence concerning TCU's unaccounted for water was held on October 29, 1991, in the Commission's hearing room. Pursuant to S.C. Code Ann. §58-3-95

1. By Order No. 91-1052 (November 22, 1991), the Commission approved the transfer of TCU's assets and its Certificate of Public Convenience and Necessity to Tega Cay Water Service, Inc.

2. A public hearing concerning the matters asserted in the Company's Application was held on April 18 and April 25, 1991.

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(Supp. 1990), a panel of three Commissioners, Commissioner Bowers (presiding), Commissioner Mitchell, and Commissioner Yonce, was designated to rule on this matter. Mitchell M. Willoughby, Esquire, represented TCU; Carl F. McIntosh, Esquire, represented the Consumer Advocate; and Gayle B. Nichols, Staff Counsel, represented the Commission Staff. TCU presented the testimony of Carl Daniel, Vice President and Regional Director of Operations of Carolina Water Service, Inc. of North Carolina and Tega Cay Water Service, Inc. Mr. Daniel explained that Tega Cay Water Service had applied to the Commission for approval to transfer TCU's franchise and that Tega Cay Water Service, Inc. had been operating the water and sewer facilities at Tega Cay for the past two months. The Commission Staff (the Staff) presented the testimony of Charles A. Creech, Chief of the Commission's Water and Wastewater Department. Although Intervenor Albert K. Stebbins, III, was not present at the hearing, all parties agreed that his pre-filed direct testimony should be placed into the record as if sworn and testified to at the hearing. (Tr., Vol. 6, p. 27, lines 1-14). No other parties appeared or testified at the hearing.³

Upon thorough consideration of the evidence presented and the applicable law, the Commission makes the following findings of fact and conclusions of law:

3. All other parties, Intervenor Anthony Tarulli, the City of Tega Cay, Carol D. Higgins, and the Property Owners Association of Tega Cay, had been duly notified of the hearing.

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FINDINGS OF FACT

1. After completion of an audit conducted after the issuance of Order No. 91-535, Mr. Daniel testified the Company determined it had produced 20,165,000 gallons of water that it had not sold. Mr. Daniel explained that this volume of water produced an unaccounted for rate of 18.3% which it considered acceptable. (Tr., Vol. 6, p. 10, lines 7-22; p. 12, lines 19-24).

2. Of the initial 20,165,000 gallons of unaccounted for water, Mr. Daniel testified the Company located the use of 20,075,000 gallons. Approximately 8,085,000 gallons had been used for chlorination and dechlorination of the wastewater treatment plant effluent to meet South Carolina Department of Health and Environmental Control (DHEC) guidelines; 4,840,000 gallons had been used to flush water mains to remove iron and manganese sediment; and an additional 50,000 gallons of water had been used to flush sewer mains. (Tr., Vol. 6, p. 10, line 28-p. 7, line 2).

3. Mr. Daniel testified that of the initial 20,165,000 gallons of unaccounted for water, the Company determined that 3,240,000 gallons had been used by a customer for irrigation, that 300,000 gallons had been used to fill a customer's swimming pool, that 100,000 gallons had been used by the fire department, and that 50,000 gallons had been used to wash the City of Tega Cay's streets and drains. (Tr., Vol. 6, p. 10, lines 28-36). Daniel admitted the Company should have charged its customers for the use of this water and that these charges would have increased TCU's revenues. (Tr., Vol. 6, p. 19, lines 15-24; p. 22, lines 14-23).

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Mr. Daniel stated that, on a prospective basis, the Company intended to charge the appropriate customers for these water uses. (Tr., Vol. 6, p. 22, line 24-p. 23, line 16).

4. Mr. Daniel testified that, at the conclusion of TCU's water audit, the Company was unable to locate 3.18% of its originally unaccounted for water. (Tr., Vol. 6, p. 25, lines 5-11). Mr. Daniel testified the Company attributed the remaining 3.18%, or 3,500,000 gallons, of the initial 20,165,000 gallons to water leaks. (Tr., Vol. 6, p. 24, lines 14-18).

5. Mr. Daniel testified that it was the Company's opinion that the rates approved by the Commission in Order No. 91-367 (May 17, 1991) were appropriate and that the Company's unaccounted for water should not result in a reduction of those rates. (Tr., Vol. 6, p. 14, lines 5-9).

6. Mr. Stebbins testified that the Commission should reduce the Company's approved commodity charge from \$2.50 to \$2.40 per thousand gallons to approximate the Company's authorized water use for which it had not billed or collected revenue. Mr. Stebbins stated that this \$.10 reduction in rates should be applied retroactively. (Tr., Vol. 6, p. 28, lines 11-16).

7. Mr. Creech testified that the Staff verified TCU's records and methodology for determining its water production and distribution for the test year. (Tr., Vol. 6, line 1-6). He explained that of the 18.34% of water produced but not charged for, 11.8% was used for the legitimate purpose of maintaining and operating the water and wastewater system, 3.36% was authorized

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for use but the Company should have billed a customer, and 3.18% was lost through system leakage. Mr. Creech testified that, based on his review of the Texas Water Utilities Association's "Manual of Water Utility Operations," the 3.18% of water lost through leaks was reasonable. (Tr., Vol. 6, p. 34, lines 1-6; lines 16-23; p. 37, lines 1-10).

8. Mr. Creech further testified that during the test year the Company had not billed the Tega Cay Fire Department, the City of Tega Cay, and the Tega Cay Clubhouse for certain of their uses of water. Mr. Creech stated that it was his opinion that the Company's general body of ratepayers had been improperly subsidizing these customers. Mr. Creech testified that the Company's revenues would have increased by \$9,441 if it had charged these customers for this water. (Tr., Vol. 6, p. 34, line 24- p. 35, line 10).

9. Finally, Mr. Creech testified that he proposed the Commission discontinue use of the term "unaccounted for water" because the term was broad and described a variety of water uses. For instance, Mr. Creech explained that "unaccounted for water" has mistakenly been used to describe water for which there was a known use but for which the utility did not bill a customer. Mr. Creech instead proposed the Commission adopt the following terms and definitions from the American Water Works Association - Research Foundation, "Water and Revenue Losses; Unaccounted - for Water" (December 1987):

"ACCOUNT WATER" is all water for which an account exists. The water is metered, and the account is

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billed.

"NON ACCOUNT WATER" is the sum of water that is produced or purchased by a company that is not covered by the term "Account Water."

"AUTHORIZED WATER USES" are all water uses known and approved or authorized by the utility. These uses include all metered uses and reliable estimates of all other approved uses; such as: public, fire, system, operational, or paid-for uses.

"UTILITY WATER USE" is the water which is removed from the distribution system by the utility for the purpose of maintaining and operating the system. This should include both the metered and unmetered water removed, with those unmetered uses being reliably estimated.

"SYSTEM LEAKAGE" is all water that is lost from the system through leaks, and breaks and includes all unavoidable leaks and all recoverable leaks and breaks.

(Tr., Vol. 6, p. 32, line 16- p. 33, line 26).

CONCLUSIONS OF LAW

1. The Company is a water and sewer utility providing service in its service area within South Carolina. The Company's operations in South Carolina are subject to the jurisdiction of the Commission pursuant to S.C. Code Ann. §58-5-10, et. seq. (1976).

2. By Order No. 91-367 (May 17, 1991) in this same docket, the Commission approved a 3.34% operating margin for the Company. The Commission determined that in order for the Company to have an opportunity to earn this operating margin, the Company would need to produce \$594,554 in total annual operating revenues. Consequently, the Commission approved an increase in the Company's previously approved commodity charge from \$1.50 to \$2.50 per 1,000 gallons.

3. The Commission concludes that the terms "account water,"

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"nonaccount water," "authorized water uses," "utility water use," and "system leakage," as defined on pages 5 and 6 of this Order, more accurately describe the potential uses of water produced or purchased by a water utility than "unaccounted for water." Accordingly, the Commission hereby adopts the use of these terms where possible for all future water utility proceedings. The Commission will refer to these terms in the remainder of this Order.

4. The Commission concludes that the Company produced 20,165,000 gallons of nonaccount water during the test year. Of this volume, the Commission finds that 12,975,000 gallons were reasonably used for utility water purposes.

5. The Commission concludes that the Company had been improperly requiring its general body of ratepayers to subsidize those customers to whom it had authorized the use of 3,690,000 gallons of water without charge. The Commission finds that the Company should have charged the appropriate customers for their actual water use and that the Company should have produced an additional \$9,441 in operating revenues.

6. The Commission continues to find that its approval of a 3.34% operating margin in Order No. 91-367 is fair and reasonable. Moreover, the Commission recognizes that there was no testimony at the hearing which suggested that the 3.34% operating margin was unreasonable. Accordingly, in order for the Company to continue to have the opportunity to earn a 3.34% operating margin with its increased revenues of \$9,441, it is necessary to reduce the

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approved commodity charge by \$.10 or from \$2.50 to \$2.40 per thousand gallons. The Commission concludes that the \$.10 reduction in the commodity charge is appropriate.⁴

7. The Commission finds that the Company was unable to locate 3,500,000 gallons of water which produced but was not sold during the test year. The Commission concludes that this loss was appropriately attributed to system leakage and that the loss of 3.18% of the water produced is reasonable.

THEREFORE, the Commission orders as follows:

1. The \$2.50 commodity charge approved by Order No. 91-367 (May 18, 1991) is hereby reduced to \$2.40 per thousand gallons as reflected on the attached Appendix A.⁵ This rate is approved for service rendered on and after the date of this Order. The schedule is deemed to be filed with the Commission pursuant to S.C. Code Ann. §58-5-240(1976).

2. The Company shall maintain its books and records for water and sewer operations in accordance with the NARUC Uniform System of Accounts for Class A and B Water and Sewer Utilities, as adopted by this Commission. In addition, the Company shall maintain accurate records of its account water and nonaccount

4. The \$.10 reduction was determined by dividing the imputed revenue of the unbilled water by the total gallons of water that were billed and which should have been billed and then by rounding the result to the nearest cent.

$\$9,441 / 93,505,000 =$
 9.9 cents per 1,000 gallons =
 10 cents per 1,000 gallons

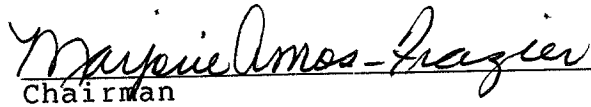
5. The attached Appendix A reflects the Company's approved schedule of rates and charges.

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water.

3. This Order shall remain in full force and effect until further Order of the Commission.

BY ORDER OF THE COMMISSION:


Chairman

ATTEST:


Executive Director

(SEAL)

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RATES AND CHARGES

I. WATER

1. MONTHLY CHARGES

- | | |
|--------------------------|---|
| a. Basic Facility Charge | \$ 6.00 per single- family
equivalent unit |
|--------------------------|---|

PLUS

- | | |
|--------------------------------|--------------------------|
| b. Commodity Charge
(Usage) | \$2.40 per 1,000 gallons |
|--------------------------------|--------------------------|
- c. The basic facility charge is a minimum charge per unit and shall apply even if the equivalency rating is less than one(1). If the equivalency rating is greater than one(1), then the monthly basic facility charge may be obtained by multiplying the equivalency rating by the basic facility charge of \$ 6.00.

When, because of the method of water line installation utilized by the developer or owner, it is impractical to meter each unit separately, service will be provided through a single meter, and consumption of all units served through such meter will be averaged; a bill will be calculated based on the average plus the addition of the basic facility charge per unit and the result multiplied by the number of units served by a single meter.

2. NONRECURRING CHARGES

- | | |
|--|----------|
| a. Tap fee includes a water service connection charge and capacity fee per single-family equivalent*** | \$600.00 |
|--|----------|

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The nonrecurring charges listed above are minimum charges and apply even if the equivalency is less than one. If the equivalency rating is greater than one (1), then the proper charge may be obtained by multiplying the equivalency rating by the appropriate fee. These charges apply and are due at the time new service is applied for and/or initial connection to the water system is requested.

(**Unless prohibited by contract approved by South Carolina Public Service Commission.)

3. RECONNECTIONS AND ACCOUNT SET UP CHARGES

- a. Water reconnection fee \$40.00
- b. Customer account charges \$30.00
(One-time fee to be charged to each new account to defray cost of initiating service)

4. OTHER SERVICES

- a. Fire Hydrant - One Hundred (\$100.00) per hydrant per year for water service payable in advance. Any water used should be metered and the commodity charge in Section One (1) above will apply to such usage.

II. SEWER RATE SCHEDULE

1. MONTHLY CHARGES

- a. Residential - Monthly charge per single-family house, condominium, villa or apartment unit \$20.00
- b. Commercial - Monthly charge per single-family equivalent \$20.00
- c. The monthly charges listed above are minimum charges and shall apply even if the equivalency is less than one (1). If the equivalency is greater than one (1), then the monthly charges may be calculated by multiplying the equivalency rating by the monthly charge of \$20.00.

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Commercial customers are those not included in the residential category above and include, but are not limited to, hotels, stores, restaurants, offices, industry, etc.

2. NONRECURRING CHARGES

- a. Tap fees (which include sewer service connection charges and capacity charges) \$1,200.00
- b. The nonrecurring charges listed above are minimum and apply even if the equivalency rating is less than one (1). If the equivalency rating is greater than one (1), then the proper charge may be obtained by multiplying the equivalency rating by the appropriate fee. These charges apply and are due at the time new service is applied for, or at the time connection to the sewer system is requested.

3. NOTIFICATION, ACCOUNT SET-UP AND RECONNECTION CHARGES

- a. Notification Fee: A fee of \$15.00 shall be charged each customer to whom the Utility mails the notice as required by Commission Rule R.103-535.1 prior to service being discontinued. This fee assesses a portion of the clerical and mailing costs of such notices to the customer creating the cost.
- b. Customer Account Charge: A fee of \$20.00 shall be charged as a one-time fee to defray the cost of initiating service. This charge will be waived if the customer is also a water customer.
- c. Reconnection Charges: In addition to any charges that may be due, a reconnection fee of \$250.00 shall be due prior to the Utility reconnecting service which has been disconnected for any reason set forth in Commission Rule R.103-532.4. The amount of the reconnection fee shall be in accordance with R.103.532.4 and shall be charged to conform with said rule, as the rule is amended from time to time.

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III. GENERAL PROVISIONS

1. BILLING CYCLE

Recurring charges will be billed monthly in arrears. Nonrecurring charges may be billed and collected in advance of service being provided.

2. LATE PAYMENT CHARGES

Any balance unpaid within twenty-five (25) days of the billing date shall be assessed a late payment charge of one and one-half (1 1/2%) percent each month (or any part of a month) said balance remains unpaid.

3. TAX MULTIPLIER

Except as otherwise provided by contract approved by the South Carolina Public Service Commission, amounts paid or transferred to the Utility by the customers, builders, developers or others, either in the form of cash or property, shall be increased by a cash payment in an amount equal to the income taxes owed on the cash or property transferred to the Utility by the customers, builders, developers or others, and properly classified as a contribution or advance in aid of construction in accordance with the uniform system of accounts. Included in this classification are tap fees.

4. TOXIC AND PRETREATMENT EFFLUENT GUIDELINES

The utility will not accept or treat any substance or material that has been defined by the United States Environmental Protection Agency ("EPA") or the South Carolina Department of Environmental Control ("DEHC") as a toxic pollutant, hazardous waste, or hazardous substance, including pollutants falling within the provisions of 40 CFR § 129.4 and 401.15. Additionally, pollutants or pollutant properties subject to 40 CFR §§ 403.5 and 403.6 are to be processed according to the pretreatment standards applicable to such pollutants or pollutant properties, and such standards constitute the Utility's minimum pretreatment standards. Any person or entity introducing any such prohibited or untreated materials into the Company's sewer system may have service interrupted without notice until such discharges cease, and shall be liable to the Utility for all damage and costs, including reasonable attorney's fees, incurred by the Utility as a result thereof.

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5. LANDLORD/TENANT RELATIONSHIP

In the case of a landlord/tenant relationship where the tenant is the customer, the Utility may require the landlord to execute an agreement wherein such landlord agrees to be responsible for all charges billed to the premises in accordance with the approved tariffs and the Rules of the Commission, and said account shall be considered the landlord's and tenant's account. In the event the landlord refuses to execute such an agreement, the Utility may not discontinue service to the premises unless and until the tenant becomes delinquent on his account or until the premises are vacated. The Utility may discontinue service pursuant to R.103-535.1 if the account is delinquent or may discontinue service at the time the premises are vacated, and the Utility shall not be required to furnish service thereafter to the premises until the landlord has executed the agreement, and paid the reconnection charges.

6. CONSTRUCTION STANDARDS

The Utility requires all construction to be performed in accordance with generally accepted engineering standards, at a minimum. The Utility from time to time may require that more stringent construction standards be followed in constructing parts of the water or sewer systems.

7. SINGLE FAMILY EQUIVALENT

The list set forth below establishes the minimum equivalency rating for commercial customers applying for or receiving sewer service from the Utility. Where the Utility has reason to suspect that a person or entity is exceeding design loading established by the South Carolina Pollution Control Authority in a publication called "Guidelines for Unit Contributory Loading to Wastewater Treatment Facilities" (1972), as may be amended from time to time or as may be set forth in any successor publication, the Utility shall have the right to request and receive water usage records from the provider of water to such person or entity. Also, the Utility shall have the right to conduct an "on premises" inspection of the customer's premises. If it is determined that the actual flows or loadings are greater than the design flows or loadings, then the Utility shall recalculate the customer's equivalency rating based on actual flows or loadings and thereafter bill for its services in accordance with such recalculated loadings.

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TYPE OF ESTABLISHMENT	EQUIVALENCY RATING
1. Airport	
(a) Each Employee.....	.025
(b) Each Passenger.....	.0125
2. Apartments.....	1.0
3. Bars	
(a) Each Employee.....	.025
(b) Each Seat (Excluding Restaurant).....	.1
4. Boarding House (Per Resident).....	.125
5. Bowling Alley	
(a) Per Lane (No Restaurant).....	.3125
(b) Additional for Bars and Cocktail Lounges (Per Seat or Person).....	.0075
6. Camps	
(a) Resort (Luxury) (Per Person).....	.25
(b) Summer (Per Person).....	.125
(c) Day (With Central Bathhouse) (Per Person)	.0875
(d) Per Travel Trailer Site.....	.4375
7. Churches (Per Seat).....	.0075
8. Clinics	
(a) Per Staff.....	.0375
(b) Per Patient.....	.0125
9. Country Club (Each Member).....	.125
10. Factories	
(a) Each Employee (No Showers).....	.0625
(b) Each Employee (With Showers).....	.0875
(c) Each Employee (With Kitchen Facilities).	.1
11. Fairgrounds (Per Person Based on Average Attendance).....	.0125
12. Food Service Operations	
(a) Ordinary Restaurant (Up to 12 Hours) (Per Seat).....	.175
(b) Over 12 Hour Restaurant (Per Seat).....	.25
(c) Curb Service (Drive in) (Per Seat).....	.25
(d) Vending Machine Restaurant (Per Person).	.175
13. Hospitals	
(a) Per Bed.....	.5
(b) Per Resident Staff.....	.25

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14.	Hotels	(Per Bedroom - No Restaurant).....	.25
15.	Institutions	(Per Resident).....	.25
16.	Laundries	(Self Service - Per Machine).....	1.0
17.	Mobile Homes	1.0
18.	Motels	(Per Unit - No Restaurant).....	.25
19.	Nursing Homes		
	(a)	Per Bed (No Laundry).....	.25
	(b)	Per Bed (With Laundry).....	.375
20.	Offices	(Per Person - No Restaurant).....	.0625
21.	Picnic Parks	(Average Daily Attendance) (Per Person).....	.025
22.	Residences	(Single Family).....	1.0
23.	Rest Homes		
	(a)	Per Bed (No Laundry).....	.25
	(b)	Per Bed (With Laundry).....	.375
24.	Schools		
	(a)	Per Person (No Showers, Gym, Cafeteria)	.025
	(b)	Per Person With Cafeteria (No Gym, Shower).....	.0375
	(c)	Per Person With Cafeteria, Gym & Shower.	.05
25.	Service Stations		
	(a)	Each Car Served (Per Day).....	.025
	(b)	Each Car Washed (Per Day).....	.1875
	(c)	First Bay.....	2.5
	(d)	Each Additional Bay.....	1.25
26.	Shopping Centers	(Per 1,000 sq. ft. Space- No Restaurants).....	.5
27.	Stadiums	(Per Seat - No Restaurants).....	.005
28.	Swimming Pools	(Per Person - With Sanitary Facilities and Showers).....	.025
29.	Theatres		
	(a)	Drive in (Per Stall).....	.0125
	(b)	Indoor (Per Seat).....	.0125